other beers of repute, Major MacMahon was so good as to permit an examination of it to be made in the Government Laboratory.

The results were as follows :—

Specific gravity	1·00873
Original gravity	1·11667
Percentage proof spirit	25·3
Ash—per 100 c.c.	0·465 gram.
Albumenoids—per 100 c.c.	1·001 ,,
Total acid—per 100 c.c. (as acetic) ..	0·18 ,,
Volatile acid—per 100 c.c. ,, ...	0·04 ,,
Specific rotatory power $[\alpha]_{D\,(3\cdot86)}$	+65·4

The alcohol which it yielded by distillation was further examined, with the following results, calculated to proof strength :—

	Per cent.
Esters (as ethyl acetate)	0·0524
Aldehyde	0·004
Higher alcohols	0·240

Huff is the strongest ale of which the Government Laboratory has any record. The nearest to it in point of alcoholic strength and general character is the strong Burton ale known as "Royal Ale." A sample of this, brewed in March, 1905, exported from Liverpool to New York, on analysis in the Government Laboratory gave the following numbers :—

Specific gravity	1·02275
Original gravity	1·10862
Percentage proof spirit	20·2
Ash—per 100 c.c.	0·490 gram.
Albumenoids—per 100 c.c.	0·945 ,,
Total acid—per 100 c.c. (as acetic)...	0·16 ,,
Volatile acid—per 100 c.c. ,, ...	0·036 ,,
Specific rotatory power $[\alpha]_{D\,(3\cdot86)}$	+96·0

Examination of Alcohol—Results Calculated to Proof Strength.

	Per cent.
Esters (as ethyl acetate)	0·022
Aldehyde	Nil
Higher alcohols	0·05

A number of analyses of various ales and stouts, taken from a paper by Mr. A. R. Ling in the *Brewer's Journal* for July, 1903, are appended, and for comparison the results of the examination of huff and the sample of "Royal Ale" are expressed in the same terms.

	Burton Pale Ale (Bottled)	Other Ales			Strong Burton Ale	Dublin Stouts		London Stouts		"Huff"	"Royal Ale"
		A	B	C		A	B	A	B		
Original gravity	1061·3	1052·8	1040·2	1059·0	1108·6	1081·4	1074·1	1072·2	1069·7	1116·67	1108·62
Attenuation gravity	1012·5	1010·4	1008·0	1013·4	1021·6	1018·2	1021·7	1022·8	1020·9	1008·73	1022·75
Absolute alcohol (by weight) ...	5·20	4·57	3·55	4·88	9·36	6·69	5·51	5·20	5·13	11·72	9·25
Total acidity expressed as acetic ...	0·10	0·08	0·07	0·08	0·16	0·20	0·20	0·16	0·14	0·18	0·16
Composition of the Extract.											
Fermented matter	64·75	64·92	64·55	62·93	66·11	63·5	58·7	55·7	56·6	76·96	65·42
Maltose (apparent)	6·05	8·04	8·32	8·74	4·19	5·1	9·6	12·1	12·2	2·38	3·30
Dextrin (apparent)	14·88	13·97	14·06	15·46	14·21	16·9	19·8	14·1	13·4	6·09	14·74
Ash	2·41	2·03	2·14	1·93	1·99	2·0	2·3	2·7	2·2	1·54	1·75
Other substances	11·91	11·04	10·93	10·94	13·50	12·5	9·6	15·4	15·6	13·03	14·79

It will be seen that the appellation of "duplex visia" as applied to huff—a liqueur among beers—is fully justified.

T. E. T.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

Cambridge.—An exhibition of 50*l.* a year, tenable for two years, is offered by the governing body of Emmanuel College to an advanced student commencing residence at the college in October. The exhibition will be awarded at the beginning of October. Applications, accompanied by two certificates of good character, should be sent to the Master of Emmanuel not later than October 1.

Prof. E. A. Minchin has resigned the Jodrell chair of zoology in University College, London, in view of his appointment to the new chair of protozoology in the University of London. Prof. E. H. Starling has been appointed to the Jodrell chair of physiology at University College. The title of emeritus professor of zoology has been conferred upon Prof. E. Ray Lankester, and that of emeritus professor of civil engineering and surveying on Prof. L. F. Vernon-Harcourt.

Among educational benefactions to the colleges of the United States recently announced by *Science* the following may be mentioned. By the will of Dr. W. T. Bacon his estate is given for life to Mrs. Bacon, but at her death the Hartford Medical Society will receive an endowment of 20,000*l.*, and Yale University will receive a part of the residuum of the estate, which is understood to be worth nearly 60,000*l.* It is reported that Mrs. J. B. Stetson has offered to give 20,000*l.* to Stetson University on condition that the present trustees resign. Parsons College, Fairfield, Iowa, recently received 16,000*l.* additional endowment through the will of Colonel Charles Parsons, of St. Louis. This increases the donor's gifts to 29,200*l.* Through the generosity of a Chicago physician (anonymous) and of Dr. Benjamin Taylor Terry, of New York City, Indiana University has received offers of two endowments for pathological research. The income of each fellowship is 150*l.* a year. Both offers are made under the condition that the University provides adequate library and laboratory facilities for such work.

The Government measure to amend the law relating to education in England and Wales was introduced in the House of Commons on Monday by Mr. Birrell, Minister of Education. It is proposed that the limit of twopence as a rate for secondary education should be removed, that Wales should have a National Education Council, and that complete public control should be secured for all elementary schools receiving State aid. The first clause of the measure proposes that, after January 1, 1908, a school shall not be recognised as a public elementary school unless it is a school provided by the local education authority, so that no elementary school will receive a penny of public money, either from rates or taxes, if it does not become a provided school within the meaning of the Act. Every elementary school receiving rates and grants will thus become at once a provided school; and it will supply the same kind of religious instruction as is now given in provided schools. No catechisms or distinctive religious formularies will be taught, and the conscience clause will operate. This will be the general rule throughout the land. The second clause of the Bill authorises a local education authority, for the purpose of continuing any existing voluntary school as a provided school, to make, with the consent of the Board of Education, arrangements for carrying on a public elementary school with the owners of the schoolhouse, subject to the condition that the education authority must, during the continuance of the agreement, assume the whole responsibility of maintaining the fabric. The cost of this change is estimated at about 260,000*l.* a year. To meet the expenditure involved in these proposals, a further annual grant of 1,000,000*l.* is

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to be given, in addition to the existing grants. It is proposed in another part of the Bill to make educational endowments as serviceable as possible for the advancement of education, and to consolidate, simplify, and improve the administrative machinery now in use. No provision is made for the training of teachers. We are not concerned here with the sectarian difficulties which seem to make it hopeless to contemplate a permanent settlement of the question of religious teaching in State schools. The denominationalists regard the provision of religious instruction without creed or catechism, prescribed by the Bill, as opposed to their principles and as an endowment of undenominationalism; therefore they will oppose the measure. The Labour Party, on the other hand, has taken the logical position that State aid should only be given for secular education; and that all religious instruction should be abolished in elementary schools, though moral or ethical teaching could be given based upon the best thoughts and works to be found in the literature and history of the world. Until a common factor of agreement is found in sectarian doctrines, or religious instruction is banished entirely from elementary schools, our educational system promises to continue to be the shuttlecock of opposing parties.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, December 7, 1905.—"On a Property which holds good for all Groupings of a Normal Distribution of Frequency for Two Variables, with Applications to the Study of Contingency-tables for the Inheritance of Unmeasured Qualities." By G. Udny **Yule**. Communicated by Prof. O. Henrici, F.R.S.

Suppose a contingency-table to have been formed for two characters which have been assigned in some way (not necessarily quantitatively) into classes. Extract from the general contingency-table the frequencies in any four adjacent compartments, and consider these as forming, by themselves, an elementary contingency-table. If the sign of association in all such elementary tetrads be the same, the general contingency-table may be termed *isotropic*. In an isotropic table the sign of the association is the same, not only for every tetrad of adjacent frequencies, but for every set of four frequencies in the compartments common to two rows and two columns. The table remains isotropic in whatever way it may be condensed by grouping together adjacent rows or columns, and if, as an extreme case, it be reduced to four-fold form, the sign of the association in such four-fold table is the same as in the elementary tetrads of the original table. If the rows and columns of an isotropic table be disarranged, the disarrangement is no longer isotropic, but the rows and columns can easily be rearranged in isotropic order. The normal frequency distribution for two variables is isotropic, and possesses the preceding properties. An examination of a number of tables recently published by Prof. Pearson for inheritance of anthropometric measurements (stature, span, forearm and head measurements) shows that all are at least approximately isotropic. On the other hand, the tables for inheritance of eye-colour published by the same writer on the basis of Mr. Galton's material, are, without exception, anisotropic, the divergence from isotropy being of such a kind as would be produced by an excess of frequency in the diagonal compartments of the table corresponding to identity of eye-colour in the two relatives. This excess, in the case of the tables for inheritance in the first degree, is not, however, so great as would be given by the theory of simple alternative inheritance, which accordingly requires modification. The same type of anisotropy appears to hold for the great majority of the tables for inheritance of coat-colour in horses given by Prof. Pearson, and also for the miscellaneous characters, mental and physical, in man, given by him in the Huxley lecture (1903). The marked prevalence of this type of distribution for such very diverse qualities, as compared—so far as investigation has gone—with its complete absence in the case of measured characters, raises the question whether it may not be, in whole or in part, of subjective origin.

The above abstract should have preceded that printed in last week's NATURE (p. 551).

January 18.—"The Growth of the Oocyte in Antedon: a Morphological Study in Cell-Metabolism." By Dr. Gilbert **Chubb**. Communicated by Prof. E. H. Starling, F.R.S.

The paper deals with the growth of the oocyte in *Antedon bifida*, Pennant, and is an attempt to utilise the morphological changes accompanying this process to determine the relative physiological significance of the various cell-structures.

The most striking expression of nucleolar activity consists in the intermittent discharge of spherules into the cytoplasm throughout the growth of the egg. Of these spherules, those discharged during the earlier period of the egg's growth constitute the yolk-nucleus, and both the origin and later behaviour of the latter structure are shown to be due to the progressively changing physical consistency of the cytoplasm. Neither the yolk-nucleus nor the nucleolar matter discharged subsequent to its formation take any part in yolk formation.

Evidence is adduced to show that the chromatin is responsible for the formation of the nucleolus, and that it is in this latter structure that the waste products of cytoplasmic activity undergo their final changes.

The irregularity of the germinal vesicle, so often accepted as an indication of the direct participation of this structure in yolk formation, is shown to be due to purely physical causes. The actual process of yolk formation is shown to be unaccompanied by increased nuclear activity, and to consist merely in the automatic conversion into a more stable form of material deposited in solution in the cytoplasm by the chromatin throughout the entire growth of the egg.

Zoological Society, March 20.—Dr. Henry Woodward, F.R.S., vice-president, in the chair.—Descriptions of the species of the coleopterous genus Sciobius: Guy A. K. **Marshall**. The genus comprised forty-one species, of which twenty-two were described as new.—A contribution to the study of evolution based upon the Mexican species of Cnemidophorus: Dr. Hans **Gadow**. The main object of the paper was to trace the correlation of certain variations exhibited by the lizards of this genus, and the environmental, bionomic conditions. To do this a revision of the numerous species of the genus had been necessary, most of the ample material for which had been collected by the author himself. Especial attention had to be paid to an exhaustive study of the surprisingly great variability of certain characters, in particular the changes of the colour-pattern and the scutellation of the collar and of the limbs. The distribution of the many races, into which some of the species seemed to have recently differentiated themselves, was likewise followed up in detail.

Geological Society, March 21.—Mr. Aubrey Strahan, F.R.S., vice-president, in the chair.—The Chalk and Drift in Möen: Rev. Edwin **Hill**. The problem of Möen is to account for portions of Drift, isolated, and seemingly included, in cliffs of Chalk. It has been assumed that these portions occupy dislocations, and that the dislocations were either simultaneous with, or subsequent to, the deposition of the Drift. But cases are here described where Drift is seen to occupy cavities in dislocations, which had been water-worn, and consequently had been produced, before the advent of the Drift. A probable assumption that there were pre-Glacial cliffs similar to the present, with clefts and furrows in the cliffs, which were covered in Glacial times with a mantle of Drift now in course of removal by denudation, explains every variety of Drift-inclusion. Slopes of uniform inclination, which rise from the beach to the bases of the vertical cliffs, appear to be talus-slopes. In reality they are everywhere solid Chalk, with only a skin of débris; this suggests post-Glacial changes in sea-level.—The relations of the Chalk and Boulder-clay near Royston (Hertfordshire): Prof. T. G. **Bonney**. On the uplands south of Royston, Mr. H. B. Woodward has described three sections (Quart. Journ. Geol. Soc., vol. lix., 1903, p. 362), which in his opinion indicate that a great ice-sheet, as it advanced from the north, sheared off large masses of Chalk and mixed them up with its ground- or englacial moraine (the Chalky Boulder-clay). The author points out that this interpretation rests on an hypothesis —namely, that the latter deposit is the direct product of

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